



**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XE057**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to a Pier Replacement Project**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice; issuance of an incidental harassment authorization.

**SUMMARY:** In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that we have issued an incidental harassment authorization (IHA) to the U.S. Navy (Navy) to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with a pier replacement project at Naval Base Point Loma, San Diego, CA.

**DATES:** This authorization is effective from October 8, 2015, through October 7, 2016.

**FOR FURTHER INFORMATION CONTACT:** Ben Laws, Office of Protected Resources, NMFS, (301) 427-8401.

**SUPPLEMENTARY INFORMATION:**

**Availability**

An electronic copy of the Navy's application and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the Internet at:

[www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm). In case of problems accessing these documents, please call the contact listed above.

## **Background**

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization. Except with respect to

certain activities not pertinent here, the MMPA defines "harassment" as “any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].”

### **Summary of Request**

On June 12, 2015, we received a request from the Navy for authorization to take marine mammals incidental to pile installation and removal associated with a pier replacement project in San Diego Bay at Naval Base Point Loma in San Diego, CA (NBPL). The Navy also submitted a separate monitoring plan and draft monitoring report pursuant to requirements of the previous IHA. The Navy submitted revised versions of the request on July 3 and July 26, 2015, a revised version of the monitoring plan on July 21, 2015, and a revised monitoring report on July 29, 2015. These documents were deemed adequate and complete. The pier replacement project is planned to occur over four years; this IHA covers only the third year of work and is valid for a period of one year, from October 8, 2015, through October 7, 2016. Hereafter, use of the generic term “pile driving” may refer to both pile installation and removal unless otherwise noted.

The use of both vibratory and impact pile driving is expected to produce underwater sound at levels that have the potential to result in behavioral harassment of marine mammals. Species with the expected potential to be present during all or a portion of the in-water work window include the California sea lion (*Zalophus californianus*), harbor seal (*Phoca vitulina richardii*), northern elephant seal (*Mirounga angustirostris*), gray whale (*Eschrichtius robustus*), bottlenose dolphin (*Tursiops truncatus truncatus*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Risso’s dolphin (*Grampus griseus*), and either short-beaked or long-beaked

common dolphins (*Delphinus* spp.). California sea lions are present year-round and are very common in the project area, while bottlenose dolphins and harbor seals are common and likely to be present year-round but with more variable occurrence in San Diego Bay. Gray whales may be observed in San Diego Bay sporadically during migration periods. The remaining species are known to occur in nearshore waters outside San Diego Bay, but are generally only rarely observed near or in the bay. However, recent observations indicate that these species may occur in the project area and therefore could potentially be subject to incidental harassment from the aforementioned activities.

This is the third such IHA, following the IHAs issued effective from September 1, 2013, through August 31, 2014 (78 FR 44539) and from October 8, 2014, through October 7, 2015 (79 FR 65378). Monitoring reports are available on the Internet at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm) and provide environmental information related to issuance of this IHA.

## **Description of the Specified Activity**

### *Overview*

NBPL provides berthing and support services for Navy submarines and other fleet assets. The existing fuel pier serves as a fuel depot for loading and unloading tankers and Navy underway replenishment vessels that refuel ships at sea (“oilers”), as well as transferring fuel to local replenishment vessels and other small craft operating in San Diego Bay, and is the only active Navy fueling facility in southern California. Portions of the pier are over one hundred years old, while the newer segment was constructed in 1942. The pier as a whole is significantly past its design service life and does not meet current construction standards.

Over the course of four years, the Navy plans to demolish and remove the existing pier and associated pipelines and appurtenances while simultaneously replacing it with a generally similar structure that meets relevant standards for seismic strength and is designed to better accommodate modern Navy ships. Demolition and construction are planned to occur in two phases to maintain the fueling capabilities of the existing pier while the new pier is being constructed. During the third year of construction (the specified activity considered under this proposed IHA), approximately 226 piles will be installed (including six 30-in steel pipe piles, 88 30 x 24-in concrete piles, and 132 16-in concrete-filled fiberglass piles). Demolition of the existing pier will continue concurrently, including the removal of approximately one hundred steel and concrete piles and twenty concrete-filled steel caissons. Removals may occur by multiple means, including vibratory removal, pile cutter, dead pull, and diamond belt saw, as determined to be most effective. Construction work under this IHA is anticipated to require a total of 115 days of in-water work. All steel piles will be driven with a vibratory hammer for their initial embedment depths and finished with an impact hammer, as necessary.

The planned actions with the potential to incidentally harass marine mammals within the waters adjacent to NBPL are vibratory and impact pile installation and removal of piles via pile cutter. Vibratory pile removal is not planned but could occur if deemed the most effective technique to remove a given pile; because this technique is not expected to occur we do not consider it separately in this document from vibratory pile driving. Concurrent use of multiple pile driving rigs is not planned; however, pile removal conducted as part of demolition activities (which could occur via a number of techniques) may occur concurrently with pile installation conducted as part of construction activities.

#### *Dates and Duration*

The entire project is scheduled to occur from 2013-17; the planned activities that are planned to occur during the period of validity for this IHA, during the third year of work, would occur for one year. Under the terms of a memorandum of understanding (MOU) between the Navy and the U.S. Fish and Wildlife Service (FWS), all noise- and turbidity-producing in-water activities in designated least tern foraging habitat are to be avoided during the period when least terns are present and engaged in nesting and foraging (a window from approximately May 1 through September 15). However, it is possible that in-water work, as described below, could occur at any time during the period of validity of this IHA. The conduct of any such work would be subject to approval from FWS under the terms of the MOU. We expect that in-water work will primarily occur from October through April. In-water pile driving and removal work using pile cutters or vibratory drivers is limited to 115 days in total under this IHA. Pile driving will occur during normal working hours (approximately 7 a.m. to 6 p.m.).

#### *Specific Geographic Region*

NBPL is located on the peninsula of Point Loma near the mouth and along the northern edge of San Diego Bay (see Figures 1-1 and 1-2 in the Navy's application). San Diego Bay is a narrow, crescent-shaped natural embayment oriented northwest-southeast with an approximate length of 24 km and a total area of roughly 4,500 ha. The width of the bay ranges from 0.3 to 5.8 km, and depths range from 23 m mean lower low water (MLLW) near the tip of Ballast Point to less than 2 m at the southern end (see Figure 2-1 of the Navy's application). San Diego Bay is a heavily urbanized area with a mix of industrial, military, and recreational uses. The northern and central portions of the bay have been shaped by historic dredging to support large ship navigation. Dredging occurs as necessary to maintain constant depth within the navigation channel. Outside the navigation channel, the bay floor consists of platforms at depths that vary

slightly. Sediments in northern San Diego Bay are relatively sandy as tidal currents tend to keep the finer silt and clay fractions in suspension, except in harbors and elsewhere in the lee of structures where water movement is diminished. Much of the shoreline consists of riprap and manmade structures. San Diego Bay is heavily used by commercial, recreational, and military vessels, with an average of over 80,000 vessel movements (in or out of the bay) per year (not including recreational boating within the Bay) (see Table 2-2 of the Navy's application). For more information about the specific geographic region, please see section 2.3 of the Navy's application.

#### *Detailed Description of Activities*

In order to provide context, we described the entire project in our *Federal Register* notice of proposed authorization associated with the first-year IHA (78 FR 30873; May 23, 2013). Please see that document for an overview of the entire fuel pier replacement project, or see the Navy's Environmental Assessment (2013) for more detail. In the notice of proposed authorization associated with the third-year IHA (80 FR 53115; September 2, 2015) we provided an overview of relevant construction methods before describing only the specific project portions scheduled for completion during the third work window. We do not repeat that information here; please refer to that document for more information. Approximately 498 piles in total are planned to be installed for the project, including steel, concrete, and plastic piles. For the third year of work, approximately 226 steel and concrete piles will be installed. Tables 1 and 2 detail the piles to be installed and removed, respectively, under this IHA.

**Table 1. Details of Piles to be Installed.**

Purpose	Location	Planned timing	Pile type	Pile number
Dolphin batter piles	North mooring	Fall 2015	30-in steel pipe	6
Fender piles	Bayward side of new pier	Fall-Winter 2015	24 x 30-in concrete	88

Fender piles	Bayward side of new pier	Fall-Winter 2015	16-in concrete-filled fiberglass	132
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**Table 2. Details of Piles to be Removed.**

Pile type	Number
Concrete fender piles (14-, 16-, and 24-in)	56
Plastic fender piles (13-in)	34
Temporary steel piles (30-in)	12
Concrete-filled steel caissons	20

### *Description of Work Accomplished*

During the first in-water work season, two primary activities were conducted: relocation of the Marine Mammal Program and the Indicator Pile Program (IPP). During the second in-water work season, the IPP was concluded and simultaneous construction of the new pier and demolition of the old pier begun. These activities were detailed in our **Federal Register** notice of proposed authorization (80 FR 53115; September 2, 2015) and are not repeated here.

### **Comments and Responses**

We published a notice of receipt of the Navy's application and proposed IHA in the **Federal Register** on September 2, 2015 (80 FR 53115). We received a letter from the Marine Mammal Commission; the Commission's comments and our responses are provided here, and the comments have been posted on the Internet at:

[www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm). Please see the Commission's letter for background and rationale regarding these recommendations.

*Comment 1:* The Commission recommends that we (1) authorize a small number of Level A harassment takes of California sea lions for construction activities at NBPL and (2) take a consistent approach in authorizing Level A harassment for other activities in which there is a potential for Level A harassment to occur (i.e., impact pile driving and seismic surveys).



*Response:* California sea lions are abundant in the vicinity of the project area, and it is therefore difficult to assume as is typical that all animals will be observed either prior to entering the shutdown zone or immediately upon surfacing within the shutdown zone. Therefore, the Navy evaluated use of a buffered shutdown zone during the course of Year 2 construction activities. The Navy ultimately proposed use of a pinniped shutdown zone with radial distance twice as large as the modeled Level A harassment zone in its request for authorization related to Year 3 construction activities. The Commission commends the Navy for amending its mitigation measures using an adaptive approach, but notes that four of 107 sea lion sightings resulting in shutdown involved animals observed within the modeled zone, rather than within the larger buffered zone. We have previously authorized Level A harassment for activities where we believe that such take is likely unavoidable. The Commission therefore believes that authorization of Level A harassment is warranted and, further, that we should take a consistent approach to such authorizations across projects.

We do not believe that the authorization of Level A harassment is warranted in this case. These four observations, within the relevant zone for impact driving of 30- and 36-in steel pipe piles, occurred over one hundred days of such activity and 238 driven piles. This gives a rate of 0.02 animals observed within the actual Level A zone per driven pile. While this rate would likely be highly variable, it does give an indication of the rarity of the event (i.e., an animal was not observed prior to traversing the buffer zone and entering the actual modeled zone). Only six days of similar pile driving (i.e., impact driving of 30-in steel pipe piles) is planned for Year 3. Based on the small number of piles associated with source levels that exceed the Level A harassment threshold, the low likelihood of an animal entering the actual Level A harassment

zone, and the demonstrated success in implementation of the buffered shutdown zone, the Navy did not request authorization of Level A harassment, and we concur with that decision.

We agree with the Commission's recommendation that we consider the need for authorization of Level A harassment consistently, but disagree that our decision here displays an inconsistent approach. We consider the need for authorization of Level A harassment on a case-by-case basis. Consistency does not demand that we reach the same outcome in all cases, but merely that we consider like factors consistently across actions.

*Comment 2:* The Commission recommends that we develop criteria and provide guidance to applicants regarding the circumstances under which we will consider requests for Level A harassment takes under section 101(a)(5)(D) of the MMPA.

*Response:* We do not agree that formal criteria are necessary, but will continue to provide guidance to applicants regarding the need to consider Level A harassment authorization. As has been our practice, we will consider relevant factors consistently in reaching action-specific decisions.

### **Description of Marine Mammals in the Area of the Specified Activity**

There are four marine mammal species which are either resident or have known seasonal occurrence in the vicinity of San Diego Bay, including the California sea lion, harbor seal, bottlenose dolphin, and gray whale (see Figures 3-1 through 3-4 and 4-1 in the Navy's application). In addition, common dolphins (see Figure 3-4 in the Navy's application), the Pacific white-sided dolphin, Risso's dolphin, and northern elephant seals are known to occur in deeper waters in the vicinity of San Diego Bay and/or have been recently observed within the bay. Although the latter three species of cetacean would not generally be expected to occur within the project area, the potential for changes in occurrence patterns due to developing El

Niño conditions in conjunction with recent observations leads us to believe that authorization of incidental take is warranted. Common dolphins have been documented regularly at the Navy’s nearby Silver Strand Training Complex, and were observed in the project area during both previous years of project activity. The Pacific white-sided dolphin has been sighted along a previously used transect on the opposite side of the Point Loma peninsula (Merkel and Associates, 2008) and there were several observations of Pacific white-sided dolphins during Year 2 monitoring. Risso’s dolphin is fairly common in southern California coastal waters (e.g., Campbell *et al.*, 2010), and could occur in the bay. Northern elephant seals are included based on their continuing increase in numbers along the Pacific coast (Carretta *et al.*, 2015) and the likelihood that animals that reproduce on the islands offshore of Baja California and mainland Mexico—where the population is also increasing—could move through the project area during migration, as well as the observation of a juvenile seal near the Fuel Pier in April 2015.

Note that common dolphins could be either short-beaked (*Delphinus delphis delphis*) or long-beaked (*D. capensis capensis*). While it is likely that common dolphins observed in the project area would be long-beaked, as it is the most frequently stranded species in the area from San Diego Bay to the U.S.-Mexico border (Danil and St. Leger, 2011), the species distributions overlap and it is unlikely that observers would be able to differentiate them in the field. Therefore, we consider that any common dolphins observed—and any incidental take of common dolphins—could be either species.

In addition, other species that occur in the Southern California Bight may have the potential for isolated occurrence within San Diego Bay or just offshore. In particular, a short-finned pilot whale (*Globicephala macrorhynchus*) was observed off Ballast Point, and a Steller sea lion (*Eumetopias jubatus monteriensis*) was seen in the project area during Year 2. These

species are not typically observed near the project area and, unlike the previously mentioned species, we do not believe it likely that they will occur in the future. Given the unlikelihood of their exposure to sound generated from the project, these species are not considered further.

We have reviewed the Navy's detailed species descriptions, including life history information, for accuracy and completeness and refer the reader to Sections 3 and 4 of the Navy's application instead of reprinting the information here. Please also refer to NMFS' website ([www.nmfs.noaa.gov/pr/species/mammals](http://www.nmfs.noaa.gov/pr/species/mammals)) for generalized species accounts and to the Navy's Marine Resource Assessment for the Southern California and Point Mugu Operating Areas, which provides information regarding the biology and behavior of the marine resources that may occur in those operating areas (DoN, 2008). The document is publicly available at [www.navfac.navy.mil/products\\_and\\_services/ev/products\\_and\\_services/marine\\_resource\\_assessments.html](http://www.navfac.navy.mil/products_and_services/ev/products_and_services/marine_resources/marine_resource_assessments.html) (accessed August 21, 2015). In addition, we provided information for the potentially affected stocks, including details of stock-wide status, trends, and threats, in our *Federal Register* notices of proposed authorization associated with the first- and second-year IHAs (78 FR 30873; May 23, 2013 and 79 FR 53026; September 5, 2014) and refer the reader to those documents rather than reprinting the information here.

Table 3 lists the marine mammal species with expected potential for occurrence in the vicinity of NBPL during the project timeframe and summarizes key information regarding stock status and abundance. See also Figures 3-1 through 3-5 of the Navy's application for observed occurrence of marine mammals in the project area. Taxonomically, we follow Committee on Taxonomy (2014). Please see NMFS' Stock Assessment Reports (SAR), available at [www.nmfs.noaa.gov/pr/sars](http://www.nmfs.noaa.gov/pr/sars), for more detailed accounts of these stocks' status and abundance. All potentially affected species are addressed in the Pacific SARs (Carretta *et al.*, 2015).

**Table 3. Marine Mammals Potentially Present in the Vicinity of NBPL.**

Species	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR <sup>3</sup>	Annual M/SI <sup>4</sup>	Relative occurrence in San Diego Bay; season of occurrence
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	Eastern North Pacific	-; N	20,990 (0.05; 20,125; 2011)	624	132 <sup>6</sup>	Occasional migratory visitor; winter
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose dolphin	California coastal	-; N	323 <sup>5</sup> (0.13; 290; 2005)	2.4	0.2	Common; year-round
Short-beaked common dolphin	California/Oregon/Washington	-; N	411,211 (0.21; 343,990; 2008)	3,440	64	Occasional; year-round (but more common in warm season)
Long-beaked common dolphin	California	-; N	107,016 (0.42; 76,224; 2009)	610	13.8	Occasional; year-round (but more common in warm season)
Pacific white-sided dolphin	California/Oregon/Washington	-; N	26,930 (0.28; 21,406; 2008)	171	17.8	Uncommon; year-round
Risso's dolphin	California/Oregon/Washington	-; N	6,272 (0.3; 4,913; 2008)	39	1.6	Rare; year-round (but more common in cool season)
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	U.S.	-; N	296,750 (n/a; 153,337; 2011)	9,200	389	Abundant; year-round
Family Phocidae (earless seals)						
Harbor seal	California	-; N	30,968 (n/a; 27,348; 2012)	1,641	43	Common; year-round
Northern elephant seal	California breeding	-; N	179,000 (n/a; 81,368; 2010)	4,882	8.8	Rare; year-round

<sup>1</sup>Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR (see footnote 3) or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

<sup>2</sup>CV is coefficient of variation; N<sub>min</sub> is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species (or similar species) life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

<sup>3</sup>Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP).

<sup>4</sup>These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value.

<sup>5</sup>This value is based on photographic mark-recapture surveys conducted along the San Diego coast in 2004-05, but is considered a likely underestimate, as it does not reflect that approximately 35 percent of dolphins encountered lack identifiable dorsal fin marks (Defran and Weller, 1999). If 35 percent of all animals lack distinguishing marks, then the true population size would be closer to 450-500 animals (Carretta *et al.*, 2015).

<sup>6</sup>Includes annual Russian harvest of 127 whales.

## **Potential Effects of the Specified Activity on Marine Mammals and Their Habitat**

We provided discussion of the potential effects of the specified activity on marine mammals and their habitat in our **Federal Register** notices of proposed authorization associated with the first- and second-year IHAs (78 FR 30873; May 23, 2013 and 79 FR 53026; September 5, 2014). The specified activity associated with this IHA is substantially similar to those considered for the first- and second-year IHAs and the potential effects of the specified activity are the same as those identified in those documents. Therefore, we do not reprint the information here but refer the reader to those documents. We also provided brief definitions of relevant acoustic terminology in our notice of proposed authorization associated with this IHA (80 FR 53115; September 2, 2015).

## **Mitigation**

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses.

The mitigation strategies described below largely follow those required and successfully implemented under the first- and second-year IHAs. For this IHA, data from acoustic monitoring conducted during the first two years of work was used to estimate zones of influence (ZOIs; see “Estimated Take by Incidental Harassment”); these values were used to develop mitigation

measures for pile driving activities at NBPL. The ZOIs effectively represent the mitigation zone that would be established around each pile to prevent Level A harassment to marine mammals, while providing estimates of the areas within which Level B harassment might occur. In addition, the Navy has defined buffers to the estimated Level A harassment zones to further reduce the potential for Level A harassment. In addition to the measures described later in this section, the Navy would conduct briefings between construction supervisors and crews, marine mammal monitoring team, acoustic monitoring team, and Navy staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

#### *Monitoring and Shutdown for Pile Driving*

The following measures apply to the Navy's mitigation through shutdown and disturbance zones:

*Shutdown Zone* – For all pile driving and removal activities, the Navy will establish a shutdown zone intended to contain the area in which SPLs equal or exceed the 180/190 dB rms acoustic injury criteria. The purpose of a shutdown zone is to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus preventing injury of marine mammals (serious injury or death are unlikely outcomes even in the absence of mitigation measures). Estimated radial distances to the relevant thresholds are shown in Table 4. For certain activities, the shutdown zone would not exist because source levels are lower than the threshold, or the source levels indicate that the radial distance to the threshold would be less than 10 m. However, a minimum shutdown zone of 20 m will be established during all pile driving and removal activities, regardless of the estimated zone. This represents a buffer of 10 m added to the previously

implemented 10 m minimum shutdown zone. In addition the Navy will effect a buffered shutdown zone that is intended to significantly reduce the potential for Level A harassment given that, in particular, California sea lions are quite abundant in the project area and bottlenose dolphins may surface unpredictably and move erratically in an area with a large amount of construction equipment. The Navy considered typical swim speeds (Godfrey, 1985; Lockyer and Morris, 1987; Fish, 1997; Fish *et al.*, 2003; Rohr *et al.*, 2002; Noren *et al.*, 2006) and past field experience (e.g., typical elapsed time from observation of an animal to shutdown of equipment) in initially defining these buffered zones, and then evaluated the practicality and effectiveness of the zones during the Year 2 construction period. The Navy will add a buffer of 75 m to the 190 dB zone for impact driving of steel piles (doubling the effective zone to 150 m radius) and will add a buffer of 100 m to the 180 dB zone for impact driving of steel piles (increasing the effective zone to 450 m). These zones are also shown in Table 5. These precautionary measures are intended to prevent the already unlikely possibility of physical interaction with construction equipment and to establish a precautionary minimum zone with regard to acoustic effects.

*Disturbance Zone* – Disturbance zones are the areas in which SPLs equal or exceed 160 and 120 dB rms (for impulse and continuous sound, respectively). Disturbance zones provide utility for monitoring conducted for mitigation purposes (i.e., shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring is for documenting incidents of Level B harassment; disturbance zone monitoring is discussed in



greater detail later (see “Monitoring and Reporting”). Nominal radial distances for disturbance zones are shown in Table 4.

In order to document observed incidents of harassment, monitors record all marine mammal observations, regardless of location. The observer’s location, as well as the location of the pile being driven, is known from a GPS. The location of the animal is estimated as a distance from the observer, which is then compared to the location from the pile. If acoustic monitoring is being conducted for that pile, a received SPL may be estimated, or the received level may be estimated on the basis of past or subsequent acoustic monitoring. It may then be determined whether the animal was exposed to sound levels constituting incidental harassment in post-processing of observational and acoustic data, and a precise accounting of observed incidences of harassment created. Therefore, although the predicted distances to behavioral harassment thresholds are useful for estimating incidental harassment for purposes of authorizing levels of incidental take, actual take may be determined in part through the use of empirical data.

Acoustic measurements will continue during the third year of project activity and zones would be adjusted as indicated by empirical data. Please see the Navy’s Acoustic and Marine Species Monitoring Plan (Monitoring Plan; available at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm)) for full details.

*Monitoring Protocols* – Monitoring will be conducted before, during, and after pile driving activities. In addition, observers will record all incidents of marine mammal occurrence, regardless of distance from activity, and will document any behavioral reactions in concert with distance from piles being driven. Observations made outside the shutdown zone will not result in shutdown; that pile segment would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities would be

halted. Monitoring will take place from fifteen minutes prior to initiation through thirty minutes post-completion of pile driving activities. Pile driving activities include the time to remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than thirty minutes. Please see the Monitoring Plan for full details of the monitoring protocols.

The following additional measures apply to visual monitoring:

(1) Monitoring will be conducted by qualified observers, who will be placed at the best vantage point(s) practicable (as defined in the Monitoring Plan) to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. Qualified observers are trained biologists, with the following minimum qualifications:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;
- Advanced education in biological science or related field (undergraduate degree or higher is required);
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;

- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior; and

- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

(2) Prior to the start of pile driving activity, the shutdown zone will be monitored for fifteen minutes to ensure that it is clear of marine mammals. Pile driving will only commence once observers have declared the shutdown zone clear of marine mammals; animals will be allowed to remain in the shutdown zone (i.e., must leave of their own volition) and their behavior will be monitored and documented. The shutdown zone may only be declared clear, and pile driving started, when the entire shutdown zone is visible (i.e., when not obscured by dark, rain, fog, etc.). In addition, if such conditions should arise during impact pile driving that is already underway, the activity would be halted.

(3) If a marine mammal approaches or enters the shutdown zone during the course of pile driving operations, activity will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or fifteen minutes have passed without re-detection of the animal. Monitoring will be conducted throughout the time required to drive a pile and for thirty minutes following the conclusion of pile driving.

#### *Timing Restrictions*

In-order to avoid impacts to least tern populations when they are most likely to be foraging and nesting, in-water work will be concentrated from October 1-April 1 or, depending

on circumstances, to April 30. However, this limitation is in accordance with agreements between the Navy and FWS, and is not a requirement of this IHA. All in-water construction activities will occur only during daylight hours (sunrise to sunset).

### *Soft Start*

The use of a soft start procedure is believed to provide additional protection to marine mammals by warning or providing a chance to leave the area prior to the hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting period. This procedure is repeated two additional times. It is difficult to specify the reduction in energy for any given hammer because of variation across drivers and, for impact hammers, the actual number of strikes at reduced energy will vary because operating the hammer at less than full power results in “bouncing” of the hammer as it strikes the pile, resulting in multiple “strikes.” The project will utilize soft start techniques for both impact and vibratory pile driving of steel piles. We require the Navy to initiate sound from vibratory hammers for fifteen seconds at reduced energy followed by a thirty-second waiting period, with the procedure repeated two additional times. For impact driving, we require an initial set of three strikes from the impact hammer at reduced energy, followed by a thirty-second waiting period, then two subsequent three strike sets. Soft start will be required at the beginning of each day’s pile driving work and at any time following a cessation of pile driving of thirty minutes or longer; these requirements are specific to both vibratory and impact driving and the requirement. For example, the requirement to implement soft start for impact driving is independent of whether vibratory driving has occurred within the past thirty minutes.

We have carefully evaluated the Navy’s proposed mitigation measures and considered their effectiveness in past implementation to determine whether they are likely to effect the least

practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals, (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

Any mitigation measure(s) we prescribe should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

(2) A reduction in the number (total number or number at biologically important time or location) of individual marine mammals exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

(3) A reduction in the number (total number or number at biologically important time or location) of times any individual marine mammal would be exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

(4) A reduction in the intensity of exposure to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing the severity of behavioral harassment only).

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying particular attention to the prey base, blockage or limitation of passage to or from biologically

important areas, permanent destruction of habitat, or temporary disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the Navy's proposed measures, as well as any other potential measures that may be relevant to the specified activity, we have determined that the planned mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

### **Monitoring and Reporting**

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking". The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for incidental take authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Any monitoring requirement we prescribe should improve our understanding of one or more of the following:

- Occurrence of marine mammal species in action area (e.g., presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of:

(1) Action or environment (e.g., source characterization, propagation, ambient noise); (2) Affected species (e.g., life history, dive patterns); (3) Co-occurrence of marine mammal species with the action; or (4) Biological or behavioral context of exposure (e.g., age, calving or feeding areas).

- Individual responses to acute stressors, or impacts of chronic exposures (behavioral or physiological).
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of an individual; or (2) Population, species, or stock.
- Effects on marine mammal habitat and resultant impacts to marine mammals.
- Mitigation and monitoring effectiveness.

Please see the Monitoring Plan (available at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm)) for full details of the requirements for monitoring and reporting. Notional monitoring locations (for biological and acoustic monitoring) are shown in Figures 3-1 and 3-2 of the Plan. The purpose of this Plan is to provide protocols for acoustic and marine mammal monitoring implemented during pile driving and removal activities. We have determined this monitoring plan, which is summarized here and which largely follows the monitoring strategies required and successfully implemented under the previous IHAs, to be sufficient to meet the MMPA's monitoring and reporting requirements. The previous monitoring plan was modified to integrate adaptive changes to the monitoring methodologies as well as updates to the scheduled construction activities. Monitoring objectives are as follows:

- Monitor in-water construction activities, including the implementation of in-situ

acoustic monitoring efforts to continue to measure SPLs from in-water construction and demolition activities not previously monitored or validated during the previous IHAs. At minimum, acoustic sound levels would be collected and evaluated acoustic for five piles of each type of fender pile to be installed.

- Monitor marine mammal occurrence and behavior during in-water construction activities to minimize marine mammal impacts and effectively document marine mammals occurring within ZOI boundaries.
- Continue the collection of ambient underwater sound measurements in the absence of project activities to develop a rigorous baseline for the project area.

#### *Acoustic Measurements*

The primary purpose of acoustic monitoring is to empirically verify modeled injury and behavioral disturbance zones (defined at radial distances to NMFS-specified thresholds of 160-, 180-, and 190-dB (rms) for underwater sound (where applicable) and 90- and 100-dB (unweighted) for airborne sound; see “Estimated Take by Incidental Harassment” below). For non-pulsed sound, distances will continue to be evaluated for attenuation to the point at which sound becomes indistinguishable from background levels. Empirical acoustic monitoring data will be used to document transmission loss values determined from measurements collected during the IPP and to examine site-specific differences in SPL and affected ZOIs on an as needed basis.

Should monitoring results indicate it is appropriate to do so, marine mammal mitigation zones would be revised as necessary to encompass actual ZOIs in subsequent years of the fuel pier replacement project. Acoustic monitoring will be conducted as specified in the approved Monitoring Plan. Please see Table 2-2 of the Plan for a list of equipment to be used during



acoustic monitoring. Monitoring locations will be determined based on results of previous acoustic monitoring effort and the best professional judgment of acoustic technicians.

Some details of the methodology include:

- No acoustic data to be collected for 30-in steel piles as sufficient data has been collected for 36-in steel piles during previous two years. One airborne sound monitoring station will be maintained.
- Hydroacoustic monitoring to be conducted at source for impact driving of a minimum of five of each type of fender pile in order to document SPLs.
- Sound level meters to be deployed to continue validation of source SPLs and 160/120 dB ZOIs as documented from previous acoustic monitoring efforts.
- Source SPLs for all construction or demolition activities will be measured for the first five events of each size or type of pile or activity if not sufficiently measured and/or validated previously; Navy would conduct additional monitoring if source unexpectedly exceeds any assumed values.
- For underwater recordings, sound level meter systems will follow methods in accordance with NMFS' 2012 guidance for the collection of source levels.
- For airborne recordings, to the extent that logistics and security allow, reference recordings will be collected at approximately 15 m from the source via a sound meter with integrated microphone. Other distances may also be utilized to obtain better data if the signal cannot be isolated clearly due to other sound sources (e.g., barges or generators).
- Ambient conditions will be measured at the project site in the absence of construction activities to determine background sound levels. Ambient levels will be recorded

over the frequency range from 7 Hz to 20 kHz. Ambient conditions will be recorded at least three times during the IHA period consistent with NMFS' 2012 guidance for the measurement of ambient sound. Each time, data will be collected for eight-hour periods for three days during typical working hours (7 a.m. to 6 p.m., Monday through Saturday) in the absence of in-water construction activities. The three recording periods will be spaced to adequately capture variation across the notional work window (October-March).

- Environmental data would be collected including but not limited to: wind speed and direction, air temperature, humidity, surface water temperature, water depth, wave height, weather conditions and other factors that could contribute to influencing the airborne and underwater sound levels (e.g., aircraft, boats).

- From all the strikes associated with each pile occurring during the Level 4 (highest energy) phase these measures will be made:

- Mean, minimum, and maximum rms pressure level in dB
- Mean duration of a pile strike (based on the ninety percent energy criterion)
- Number of hammer strikes
- Mean, minimum, and maximum single strike SEL in dB re  $\mu\text{Pa}^2 \text{ sec}$
- Cumulative SEL as defined by the mean single strike SEL +  $10 \cdot \log(\# \text{ hammer strikes})$  in dB re  $\mu\text{Pa}^2 \text{ sec}$
- A frequency spectrum (pressure spectral density) in [dB re  $\mu\text{Pa}^2 \text{ per Hz}$ ] based on the average of up to eight successive strikes with similar sound. Spectral resolution will be 1 Hz and the spectrum will cover nominal range from 7 Hz to 20 kHz.

Full details of acoustic monitoring requirements may be found in section 3.2 of the Navy's approved Monitoring Plan and in section 13 of the Navy's application.

### *Visual Marine Mammal Observations*

The Navy will collect sighting data and behavioral responses to construction for marine mammal species observed in the region of activity during the period of activity. All observers will be trained in marine mammal identification and behaviors and are required to have no other construction-related tasks while conducting monitoring. The Navy will monitor the shutdown zone and disturbance zone before, during, and after pile driving as described under “Mitigation” and in the Monitoring Plan, with observers located at the best practicable vantage points.

Notional monitoring locations are shown in Figures 3-1 and 3-2 of the Navy’s Plan. Please see that plan, available at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm), for full details of the required marine mammal monitoring. Section 4.2 of the Plan and section 13 of the Navy’s application offer more detail regarding monitoring protocols. Based on our requirements, the Navy would implement the following procedures for pile driving:

- MMOs would be located at the best vantage point(s) in order to properly see the entire shutdown zone and as much of the disturbance zone as possible.
- During all observation periods, observers will use binoculars and the naked eye to search continuously for marine mammals.
- If the shutdown zones are obscured by fog or poor lighting conditions, pile driving at that location will not be initiated until that zone is visible. Should such conditions arise while impact driving is underway, the activity would be halted.
- The shutdown and disturbance zones around the pile will be monitored for the presence of marine mammals before, during, and after any pile driving or removal activity.

One MMO will be placed on the active construction/demolition platform in order to observe the respective shutdown zones for vibratory and impact pile driving or for applicable

demolition activities. Monitoring will be primarily dedicated to observing the shutdown zone; however, MMOs would record all marine mammal sightings beyond these distances provided it did not interfere with their effectiveness at carrying out the shutdown procedures. Additional land, pier, or vessel-based MMOs will be positioned to monitor the shutdown zones and the buffer zones, as notionally indicated in Figures 3-1 and 3-2 of the Navy's application. Up to five additional MMOs will be deployed during driving of steel piles, and at least one additional MMO will be deployed during driving of fender piles and during applicable demolition activities.

Because there are different threshold distances for different types of marine mammals (pinniped and cetacean), the observation platform at the shutdown zone will concentrate on the 190 dB rms and 180 dB rms isopleths locations and station the observers and vessels accordingly. The MMOs associated with these platforms will record all visible marine mammal sightings. Confirmed takes will be registered once the sightings data has been overlaid with the isopleths identified in Table 4 and visualized (for steel piles) in Figure 6-2 of the Navy's application, or based on refined acoustic data, if amendments to the ZOIs are needed. The acousticians on board will be noting SPLs in real-time, but, to avoid biasing the observations, will not communicate that information directly to the MMOs. These platforms may move closer to, or farther from, the source depending on whether received SPLs are less than or greater than the regulatory threshold values. All MMOs will be in radio communication with each other so that the MMOs will know when to anticipate incoming marine mammal species and when they are tracking the same animals observed elsewhere.

If any species for which take is not authorized is observed by a MMO during applicable construction or demolition activities, all construction will be stopped immediately. If a boat is

available, MMOs will follow the animal(s) at a minimum distance of 100 m until the animal has left the Level B ZOI. Pile driving will commence if the animal has not been seen inside the Level B ZOI for at least one hour of observation. If the animal is resighted again, pile driving will be stopped and a boat-based MMO (if available) will follow the animal until it has left the Level B ZOI.

Individuals implementing the monitoring protocol will assess its effectiveness using an adaptive approach. Monitoring biologists will use their best professional judgment throughout implementation and seek improvements to these methods when deemed appropriate. Any modifications to protocol will be coordinated between NMFS and the Navy.

#### *Data Collection*

We require that observers use approved data forms. Among other pieces of information, the Navy will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, the Navy will attempt to distinguish between the number of individual animals taken and the number of incidents of take. We require that, at a minimum, the following information be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (e.g., percent cover, visibility);
- Water conditions (e.g., sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;

- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity, and if possible, the correlation to measured SPLs;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Description of implementation of mitigation measures (e.g., shutdown or delay);
- Locations of all marine mammal observations; and
- Other human activity in the area.

In addition, photographs would be taken of any gray whales observed. These photographs would be submitted to NMFS' West Coast Regional Office for comparison with photo-identification catalogs to determine whether the whale is a member of the WNP population.

### *Reporting*

A draft report will be submitted to NMFS within 45 calendar days of the completion of marine mammal monitoring, or sixty days prior to the issuance of any subsequent IHA for this project, whichever comes first. The report will include marine mammal observations pre-activity, during-activity, and post-activity during pile driving days, and will also provide descriptions of any behavioral responses to construction activities by marine mammals and a complete description of all mitigation shutdowns and the results of those actions. A final report will be prepared and submitted within thirty days following resolution of comments on the draft report. Required contents of the monitoring reports are described in more detail in the Navy's Acoustic and Marine Species Monitoring Plan.

### *Monitoring Results from Previously Authorized Activities*

The Navy complied with the mitigation and monitoring required under the previous authorizations for this project. Acoustic and marine mammal monitoring was implemented as required, with marine mammal monitoring occurring before, during, and after each pile driving event. During the course of Year 2 activities, the Navy did not exceed the take levels authorized under the IHA. However, the Navy did record four observations of California sea lions within the defined 190-dB shutdown zone. Previous acoustic and marine mammal monitoring results were detailed in our **Federal Register** notice of proposed authorization (80 FR 53115; September 2, 2015) and are not repeated here.

### **Estimated Take by Incidental Harassment**

Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines “harassment” as: “...any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].”

All anticipated takes would be by Level B harassment resulting from vibratory and impact pile driving or demolition and involving temporary changes in behavior. The planned mitigation and monitoring measures (i.e., buffered shutdown zones) are expected to minimize the possibility of Level A harassment such that we believe it is unlikely. We do not expect that injurious or lethal takes would occur even in the absence of the planned mitigation and monitoring measures.

If a marine mammal responds to a stimulus by changing its behavior (e.g., through relatively minor changes in locomotion direction/speed or vocalization behavior), the response

may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (e.g., Lusseau and Bejder, 2007; Weilgart, 2007). Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals, it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound. In practice, depending on the amount of information available to characterize daily and seasonal movement and distribution of affected marine mammals, it can be difficult to distinguish between the number of individuals harassed and the instances of harassment and, when duration of the activity is considered, it can result in a take estimate that overestimates the number of individuals harassed. In particular, for stationary activities, it is more likely that some smaller number of individuals may accrue a number of incidences of harassment per individual than for each incidence to accrue to a new individual, especially if those individuals display some degree of residency or site fidelity and the impetus to use the site (e.g., because of foraging opportunities) is stronger than the deterrence presented by the harassing activity.

The project area is not believed to be particularly important habitat for marine mammals, nor is it considered an area frequented by marine mammals (with the exception of California sea lions, which are attracted to nearby haul-out opportunities). Sightings of other species are relatively rare. Therefore, behavioral disturbances that could result from anthropogenic sound associated with these activities are expected to affect only a relatively small number of individual marine mammals, although those effects could be recurring over the life of the project if the same individuals remain in the project vicinity.



The Navy requested authorization for the potential taking of small numbers of California sea lions, harbor seals, bottlenose dolphins, common dolphins, Pacific white-sided dolphins, Risso's dolphins, northern elephant seals, and gray whales in San Diego Bay and nearby waters that may result from pile driving during construction activities associated with the fuel pier replacement project described previously in this document. In order to estimate the potential incidents of take that may occur incidental to the specified activity, we typically first estimate the extent of the sound field that may be produced by the activity and then consider in combination with information about marine mammal density or abundance in the project area.

We provided detailed information on applicable sound thresholds for determining effects to marine mammals and described the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidents of take, in our **Federal Register** notice of proposed authorization (80 FR 53115; September 2, 2015). That information is unchanged, and our take estimates were calculated in the same manner and on the basis of the same information as what was described in the **Federal Register** notice. Measured distances to relevant thresholds are shown in Table 4, assumed ZOIs and days of activity are shown in Table 5, and total estimated incidents of take are shown in Table 6. Please see our **Federal Register** notice of proposed authorization (80 FR 53115; September 2, 2015) for full details of the process and information used in estimating potential incidents of take.

**Table 4. Measured Distances to Relevant Thresholds.**

Activity	Distance to threshold in meters					
	190 dB	180 dB	160 dB	120 dB	100 dB	90 dB
Impact driving, steel piles <sup>1</sup>	75 <sup>2</sup>	350 <sup>2</sup>	2,000	n/a	78	182
Vibratory driving, steel piles	<10	<10	n/a	3,000	-	-
Impact driving, 24x30 concrete piles	<10	<10	505	n/a	-	-
Impact driving, 16-in concrete-filled fiberglass piles	<10	<10	259	n/a	-	-

Pile cutting (demolition)	<10	<10	n/a	1,500	-	-
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<sup>1</sup>Note that, for underwater zones, these values are based on data for bayside piles and will be precautionary for shoreside piles.

<sup>2</sup>The buffered zones for use in mitigation will be 150 m and 450 m, respectively. The minimum zone for other activities listed here will be 20 m.

### *Description of Take Calculation*

The following assumptions are made when estimating potential incidences of take:

- All marine mammal individuals potentially available are assumed to be present within the relevant area, and thus incidentally taken;

- An individual can only be taken once during a 24-h period;
- The assumed ZOIs and days of activity are as shown in Table 5; and,
- Exposures to sound levels at or above the relevant thresholds equate to take, as defined by the MMPA.

The estimation of marine mammal takes typically uses the following calculation:

Exposure estimate = (n \* ZOI) \* days of total activity

where:

n = density estimate used for each species/season

ZOI = sound threshold ZOI area; the area encompassed by all locations where the SPLs equal or exceed the threshold being evaluated

n \* ZOI produces an estimate of the abundance of animals that could be present in the area for exposure, and is rounded to the nearest whole number before multiplying by days of total activity.

The ZOI impact area is estimated using the relevant distances in Table 4, assuming that sound radiates from a central point in the water column slightly offshore of the existing pier and taking into consideration the possible affected area due to topographical constraints of the action

area (i.e., radial distances to thresholds are not always reached). When local abundance is the best available information, in lieu of the density-area method described above, we may simply multiply some number of animals (as determined through counts of animals hauled-out) by the number of days of activity, under the assumption that all of those animals will be present and incidentally taken on each day of activity.

**Table 5. Activity-Specific Days and Calculated ZOIs.**

Activity	Number of days	ZOI (km <sup>2</sup> )
Impact and vibratory driving, 30-in steel piles <sup>1</sup>	6	5.6572
Vibratory removal	6	5.6572
Impact driving, 24x32-in concrete piles	22	0.1914
Impact driving, 16-in concrete-filled fiberglass piles	33	0.0834
Hydraulic pile cutting/diamond saw cutting	48	3.0786

<sup>1</sup>We assume that impact driving of 30-in steel piles would always occur on the same day as vibratory driving of the same piles. Therefore, the impact driving ZOI (3.8894 km<sup>2</sup>) would always be subsumed by the vibratory driving ZOI.

Where appropriate, we use average daily number of individuals observed within the project area during Navy marine mammal surveys converted to a density value by using the largest ZOI as the effective observation area. It is the opinion of the professional biologists who conducted these surveys that detectability of animals during these surveys, at slow speeds and under calm weather and excellent viewing conditions, approached one hundred percent.

There are a number of reasons why estimates of potential incidents of take may be conservative, assuming that available density or abundance estimates and estimated ZOI areas are accurate (aside from the contingency correction discussed above). We assume, in the absence of information supporting a more refined conclusion, that the output of the calculation represents the number of individuals that may be taken by the specified activity. In fact, in the context of stationary activities such as pile driving and in areas where resident animals may be present, this number more realistically represents the number of incidents of take that may accrue to a smaller number of individuals. While pile driving can occur any day throughout the period of validity,

and the analysis is conducted on a per day basis, only a fraction of that time (typically a matter of hours on any given day) is actually spent pile driving. The potential effectiveness of mitigation measures in reducing the number of takes is typically not quantified in the take estimation process. For these reasons, these take estimates may be conservative. See Table 6 for total estimated incidents of take.

**Table 6. Calculations for Incidental Take Estimation.**

Species	Density	Impact driving, steel <sup>1</sup>	Vibratory driving, steel	Impact driving, concrete	Impact driving, concrete/fiberglass	Vibratory removal	Pile cutting	Total authorized takes (% of total stock)
California sea lion	15.9201	372	540	22	33	540	2,352	3,487 (1.2)
Harbor seal	0.4987	12	18	0	0	18	96	132 (0.4)
Bottlenose dolphin	1.2493	30	42	0	0	42	192	276 (55.2) <sup>2</sup>
Common dolphin	1.5277	36	54	0	0	54	240	348 (0.3 [LB]/0.1 [SB]) <sup>3</sup>
Gray whale	0.115	0	6	0	0	6	0	12 (0.1)
Northern elephant seal <sup>4</sup>	0.0508	1	1	0	0	1	1	3 (0.002)
Pacific white-sided dolphin <sup>5</sup>	0.0493	1	1	0	0	1	1	21 (0.04)
Risso's dolphin	0.2029	6	6	0	0	6	48	60 (1.0)

<sup>1</sup>We assume that impact driving of steel piles would occur on the same day as vibratory driving of the same piles. Therefore, these estimates are provided for reference only and are not included in the total take authorization.

<sup>2</sup>Total stock assumed to be 500 for purposes of calculation. See Table 3.

<sup>3</sup>LB = long-beaked; SB = short-beaked.

<sup>4</sup>Although the density calculation gives a result of zero for all scenarios, we assume one occurrence of one northern elephant seal will occur in the relevant ZOI for each indicated activity.

<sup>5</sup>Although the density calculation gives a result of zero for all scenarios, we assume one occurrence of a group of Pacific white-sided dolphins will occur in the relevant ZOI for each indicated activity, with a group size of seven.

## **Analyses and Determinations**

### *Negligible Impact Analysis*

NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, we consider other factors, such as the likely nature of any responses (e.g., intensity, duration), the context of any responses (e.g., critical reproductive time or location, migration), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

Pile driving activities associated with the pier replacement project have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from underwater sounds generated from pile driving. Potential takes could occur if individuals of these species are present in the ensonified zone when pile driving is happening.

No injury, serious injury, or mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is minimized through the construction method and the implementation of the

planned mitigation measures. For example, use of vibratory hammers does not have significant potential to cause injury to marine mammals due to the relatively low source levels produced (site-specific acoustic monitoring data show no source level measurements above 180 dB rms) and the lack of potentially injurious source characteristics. Impact pile driving produces short, sharp pulses with higher peak levels and much sharper rise time to reach those peaks. When impact driving is necessary, required measures (implementation of buffered shutdown zones) significantly reduce any possibility of injury. Given sufficient “notice” through use of soft start (for impact driving), marine mammals are expected to move away from a sound source that is annoying prior to its becoming potentially injurious. The likelihood that marine mammal detection ability by trained observers is high under the environmental conditions described for San Diego Bay (approaching one hundred percent detection rate, as described by trained biologists conducting site-specific surveys) further enables the implementation of shutdowns to avoid injury, serious injury, or mortality.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from past years of this project and other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (e.g., Thorson and Reyff, 2006; HDR, 2012; Lerma, 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to vibratory driving, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile driving activities analyzed here are similar to, or less impactful than, numerous other

construction activities conducted in San Francisco Bay and in the Puget Sound region, which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment will be reduced to the level of least practicable impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the project area while the activity is occurring.

In summary, this negligible impact analysis is founded on the following factors: (1) the possibility of injury, serious injury, or mortality may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the absence of any significant habitat within the project area, including rookeries, significant haul-outs, or known areas or features of special significance for foraging or reproduction; (4) the presumed efficacy of the planned mitigation measures in reducing the effects of the specified activity to the level of least practicable impact. In addition, these stocks are not listed under the ESA or considered depleted under the MMPA. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts. Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into

consideration the implementation of the proposed monitoring and mitigation measures, we find that the total marine mammal take from Navy's pier replacement activities will have a negligible impact on the affected marine mammal species or stocks.

#### *Small Numbers Analysis*

The number of incidents of take authorized for these stocks, with the exception of the coastal bottlenose dolphin (see below), would be considered small relative to the relevant stocks or populations (see Table 6) even if each estimated taking occurred to a new individual. This is an extremely unlikely scenario as, for pinnipeds occurring at the NBPL waterfront, there will almost certainly be some overlap in individuals present day-to-day and in general, there is likely to be some overlap in individuals present day-to-day for animals in estuarine/inland waters.

The numbers of authorized take for bottlenose dolphins are higher relative to the total stock abundance estimate and would not represent small numbers if a significant portion of the take was for a new individual. However, these numbers represent the estimated incidents of take, not the number of individuals taken. That is, it is likely that a relatively small subset of California coastal bottlenose dolphins would be incidentally harassed by project activities. California coastal bottlenose dolphins range from San Francisco Bay to San Diego (and south into Mexico) and the specified activity would be stationary within an enclosed water body that is not recognized as an area of any special significance for coastal bottlenose dolphins (and is therefore not an area of dolphin aggregation, as evident in Navy observational records). We therefore believe that the estimated numbers of takes, were they to occur, likely represent repeated exposures of a much smaller number of bottlenose dolphins and that, based on the limited region of exposure in comparison with the known distribution of the coastal bottlenose dolphin, these estimated incidents of take represent small numbers of bottlenose dolphins.



Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, we find that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

### **Impact on Availability of Affected Species for Taking for Subsistence Uses**

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, we have determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

### **Endangered Species Act (ESA)**

The Navy initiated informal consultation under section 7 of the ESA with NMFS Southwest Regional Office (now West Coast Regional Office) on March 5, 2013. NMFS concluded on May 16, 2013, that the proposed action may affect, but is not likely to adversely affect, WNP gray whales. The Navy has not requested authorization of the incidental take of WNP gray whales and no such authorization was proposed, and there are no other ESA-listed marine mammals found in the action area. Therefore, no consultation under the ESA is required.

### **National Environmental Policy Act (NEPA)**

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), the Navy prepared an Environmental Assessment (EA) to consider the direct, indirect and cumulative effects to the human environment resulting from the pier replacement project. NMFS made the Navy's EA available to the public for review and comment, in relation to its suitability for adoption by NMFS in order to assess the impacts to the

human environment of issuance of an IHA to the Navy. Also in compliance with NEPA and the CEQ regulations, as well as NOAA Administrative Order 216-6, NMFS has reviewed the Navy's EA, determined it to be sufficient, and adopted that EA and signed a Finding of No Significant Impact (FONSI) on July 8, 2013.

We have reviewed the Navy's application for a renewed IHA for ongoing construction activities for 2015-16 and the 2014-15 monitoring report. Based on that review, we have determined that the proposed action is very similar to that considered in the previous IHAs. In addition, no significant new circumstances or information relevant to environmental concerns have been identified. Thus, we have determined that the preparation of a new or supplemental NEPA document is not necessary, and, after review of public comments reaffirm our 2013 FONSI. The 2013 NEPA documents are available for review at [www.nmfs.noaa.gov/pr/permits/incidental/construction.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm).

### **Authorization**

As a result of these determinations, we have issued an IHA to the Navy for conducting the described pier replacement activities in San Diego Bay, from October 8, 2015 through October 7, 2016, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: October 6, 2015.

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